Electric Vehicle Education

A program for Illinois

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Electric Vehicle ASSOCIATION

Half of cars sold in America will be electric by 2030

Transportation Electrification Education for K-12 Students

University of Michigan Study

The ultimate success of electric vehicles rests largely with a user base that is currently still in our schools.

That group will also yield the technicians, engineers and scientists who will drive the on-going development of electric vehicle capabilities.

Providing K-12 students with opportunities to experience & understand vehicle electrification is therefore an important component in gaining widespread community acceptance of this new and transformative technology."

Electric Vehicle Education Plan for Illinois

1) Introduction EV curriculum for junior high civics, and additional curriculum in high school civics class.

2) Illinois driver education program to include:
-Charging an EV, Range of an EV, differences in driving technique (regenerative braking etc.)
-Having at least one EV available to drive

3) Add EV and EV charging questions to Illinois Measure of Academic Progress (MAP) testing.

4) Consider using the expertise of the National Energy Foundation to develop the above programs.

EV Education Program Benefits:

Students will become familiar with electric vehicle ownership and its benefits.

Electric Vehicles with their reduced cost of ownership and maintenance, will save the consumer money as well as improve air quality for all.

This educational program will drive faster adoption of EV's therefore putting more Electric vehicles on the road.

Health quality will improve around school areas as well as their neighborhood

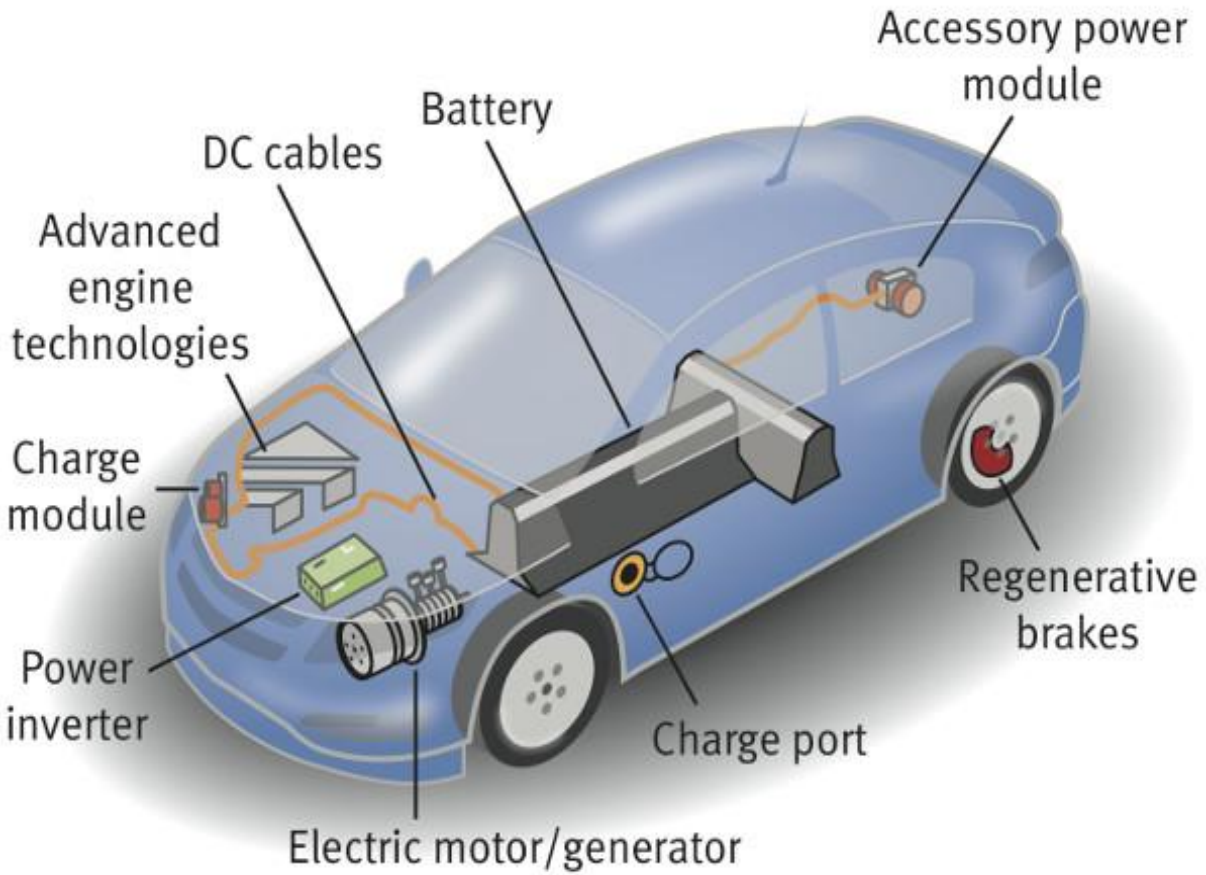
EV education contributes to equitable distribution of benefits to BIPOC, environmental justice communities.

All individuals will gain access to the world of EV's

All schools regardless of where the community is will receive equal access to and materials (books, videos etc.)

Environmental justice communities who are especially impacted by poor air quality due to automobile and truck exhaust will benefit greatly.

For the purchase of EV's for the Driver Education program additional money will be provided to benefit eligible communities.


Accessory power module
Battery
DC cables
Advanced engine technologies
Charge module
Power inverter
Regenerative brakes
Charge port
Electric motor/generator

rEV Program - NEF

1) EV education for students in grades 7-12

2) Midwestern utilities participating in rEV
   -UPPCO, OPPD, Xcel Energy, Austin Utilities
   -Piloted in 2021, expanded in 2022

3) Possible collaboration with FVEAA
   -Create stronger community engagement
   -EV showcase at participating schools

EV Education - The Time is Now

Electric Vehicle
• ASSOCIATION •

Salesperson direct payments

Pay salespeople, not dealers, to push electric cars

Dealers don’t want to sell EV’s

- EV’s don’t need oil changes
- EV’s don’t have traditional transmissions
- EV’s create less service revenue than ICE vehicles

Salespeople don’t want to sell EV’s

- EV’s are “harder” to sell
  - Under educated customers have time consuming questions
  - Range anxiety
  - Where to charge on the road
  - How to charge at home
  - Complaints after the sale that [illegible]

Salespeople educate consumers

- Salespeople educate under educated consumers
  - This happens today on many of the cars sold
  - Often the education is driven by incentives that the customer is not informed about

Salespeople work to make money!

- Every car salesperson that has told you they work for a base salary, and not commission, is lying.
- It’s common for them to say this so they can appear to be disinterested in whether you buy or not
- They get paid commission and that isn’t all...

Pay Salespeople get now

- Dealers have complex bonus and incentive programs to drive their salespeople to sell more cars
- Usually commission plus bonus for the month
  - Payment to salesperson is not linear per car
  - The more cars they sell the more they make per car

Incentives Salespeople get now

- Manufacturers incentives are between 0 and $500
  - These incentives are paid direct to the salespeople so that the dealer can't interfere
- Manufacturers offer these incentive programs to sell surplus cars, and to make them more competitive at multi-branded dealers

Incentive them to sell EV's

- Offering an incentive to the salesperson encourages them to learn about the EV's they offer
- The incentive makes it "worth the effort" in their mind
- We should pay salespeople $100 for each EV they sell

ICC EVSE Ordinances

Unless Illinois HB3125 passes

If HB3125 passes

- No additional funding would be required
- Every municipal service would have to implement the required changes
- Close enough to this proposal that any gaps are likely to be small

If HB3125 doesn’t pass

- A plan would need to be created
- Each municipality needs to adopt the standards set forth in the plan
  - Residential, workplace, and public charging

If HB3125 doesn’t pass

- We propose paying each municipality $30,000 to implement these standards
- The biggest complaint from a small municipality to changing things is the required labor and $30,000 should pay for the labor required to achieve this goal in any small to medium sized municipality

If HB3125 doesn't pass

- Disadvantaged communities should get priority and an additional $15,000
  - They have the least resources to spend on making these changes
  - They should have the easiest access to the funding

Items expected in the standards

- All new construction will have conduit run from the panel to the parking spaces
- The service panels are sized to allow for those parking spaces to all be connected without a service upgrade

Items expected in the standards

- Same implementation in all of the municipalities
  - Simplifies installation for the installers
- Follow federal rules or best practices on signs and markings

Follow the leaders

- Austin Texas implemented a program and it could have contributed to Tesla picking the Austin area for their factory
- Kane County IL has some of these items already in place
- Naperville IL has started implementing these items

Installing Home EVSE

Education on Installing Home EVSE – Best Practice Pamphlet for Electricians

Installation of EVSE (Electric Vehicle Supply Equipment)

- Requires electrical installation that is safely and efficiently installed at the home and in compliance with building and electrical codes.
- Typically an electrician applies for a permit to install EVSE; the pamphlet would guide the electrician / electrical contractor to undertake this process in an efficient, safe and cost effective manner.

Education Pamphlets for Customers

- Make sure customers know what to ask from their electrician.
- The document could be provided by the electric utility company to their customers.

EVSE Installation Experience

- FVEAA members have assisted or been involved in numerous EVSE installations over the past 20 years and consequently have a large amount of experience which can be made available to interested parties.

EVSE Installation Experience

- The pamphlet would be maintained to make sure that the practices described would be in compliance with building and electrical codes as they are changed or updated.

Program Cost

a) Utilities would deliver the end user materials directly to their customers at their expense after the FVEAA assisted them in developing the content.

b) FVEAA members would contribute time and expertise to edit and update the pamphlet which would essentially be free, donated time.

c) Printing costs would be incurred for physical copies. We would anticipate a per pamphlet cost of $1.00, and available for download on the utilities website.

Program Cost

d) Online access to an electronic version can also be made available and it is anticipated that the cost of this would be no new spend as it would be hosted on the utility website.

e) Utility Funding

   i) Assuming 5000 pamphlets be freely available to interested parties, for example at EV educational events to $5,000

Program Benefits

Providing homeowners and electricians with quick access to EVSE installation information and the installation process will greatly increase the uptake of EV ownership and use.

Barriers to Home EVSE

- Barrier - Would be EV purchasers are quite often intimidated with the concept of charging an EV at home.
  - Education on how long it will take to charge based on the type of station and how far an average EV can go with that amount of charging time.

Barriers to Home EVSE

- Barrier - A contractor may struggle with the installation. This pamphlet provides access and guides to expedite the process.
  - By providing standards to electricians to follow this will expedite permit approval and instructions to follow to make installations go more smoothly.

Barriers to Home EVSE

- Barrier - High cost to installing an EVSE station at home. Because the homeowner is better informed with this resource they can make a better informed purchasing decision.
  - By providing more accurate ways to estimate costs based on the types of installation and challenges that come up.

Implementation

- The creation of a pamphlet can be achieved in less than 6-12 months.
- The delivery can be readily available.
- Plan includes additional funding for resource constrained areas and provides the same information for EVSE installations for all communities.

Useful resources

- https://afdc.energy.gov/files/u/publication/pev_consumer_handbook.pdf
  - Plug-In Electric Vehicle Handbook for Consumers by US Dept. of Energy
- https://businessportal.ca.gov/wp-content/uploads/2019/07/GoBIZ-EVCharging-Guidebook.pdf
  - Electric Vehicle Charging Station Permitting Guidebook from California Governor's Office.
- https://afdc.energy.gov/files/pdfs/51228.pdf
  - Plug-In Electric Vehicle Handbook for Electrical Contractors by US Dept. of Energy
- https://avt.inl.gov/sites/default/files/pdf/EVProj/WhatWereBestPracticesForResidentialInstallations.pdf
  - What were the "Best Practices" Identified for Residential Charger Installations? - An EVSE installation project in 2015.
- ARTICLE 625, NEC ELECTRIC VEHICLE CHARGING SYSTEMS
  - Specifc National Electric Code with specific references to EV Charging System (Supply) Equipment.